FIG. 1A

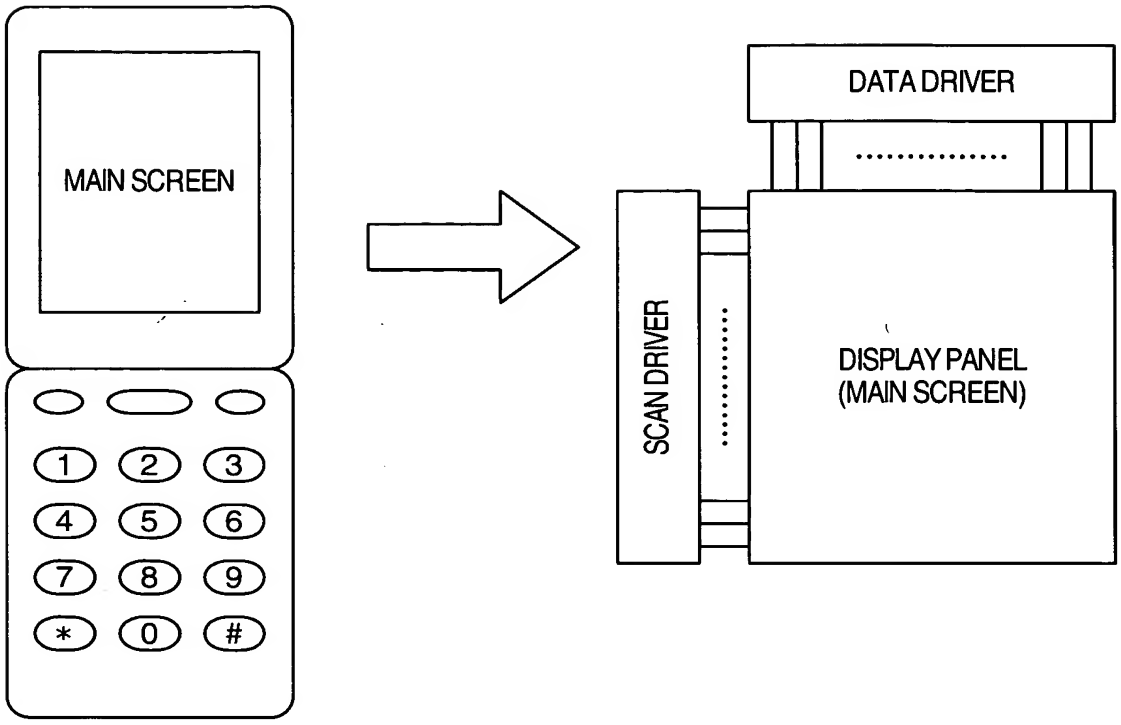

MAIN SCREEN
1
2
3
4
5
6
7
8
9
*
0
#
DATA DRIVER
SCAN DRIVER
DISPLAY PANEL
(MAIN SCREEN)

FIG. 1B

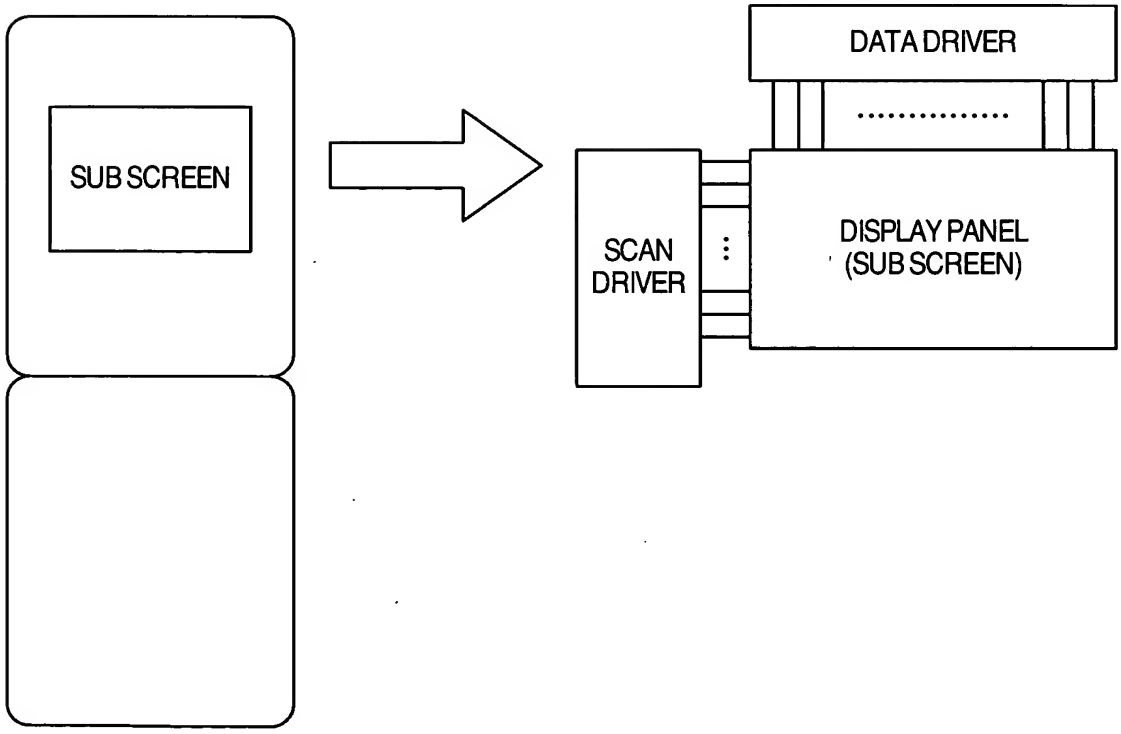

SUB SCREEN
DATA DRIVER
SCAN
DRIVER
DISPLAY PANEL
(SUB SCREEN)

FIG. 2A

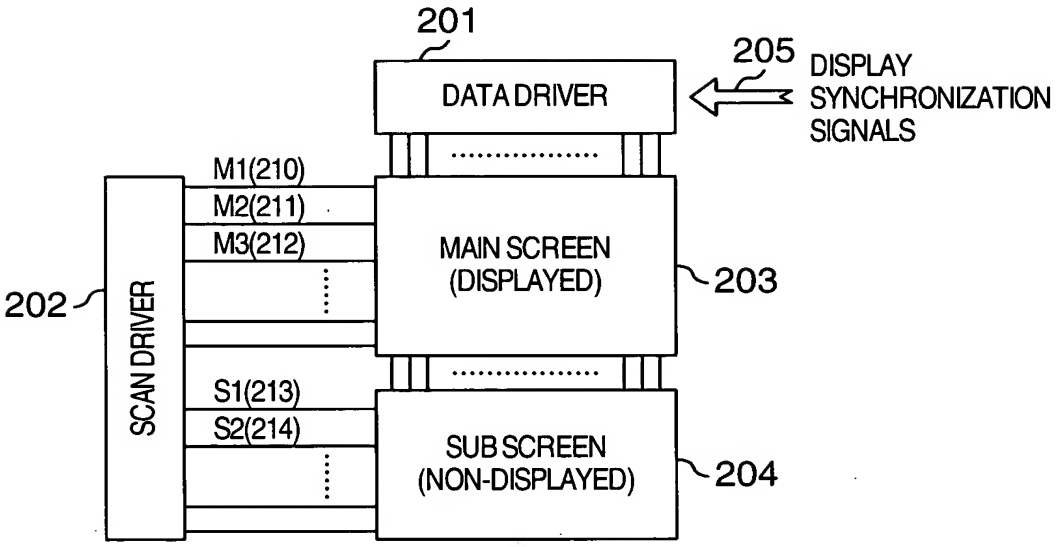

201
205
DATA DRIVER
DISPLAY SYNCHRONIZATION SIGNALS
M1(210)
M2(211)
M3(212)
MAIN SCREEN (DISPLAYED)
203
202
SCAN DRIVER
S1(213)
S2(214)
SUB SCREEN (NON-DISPLAYED)
204

FIG. 2B

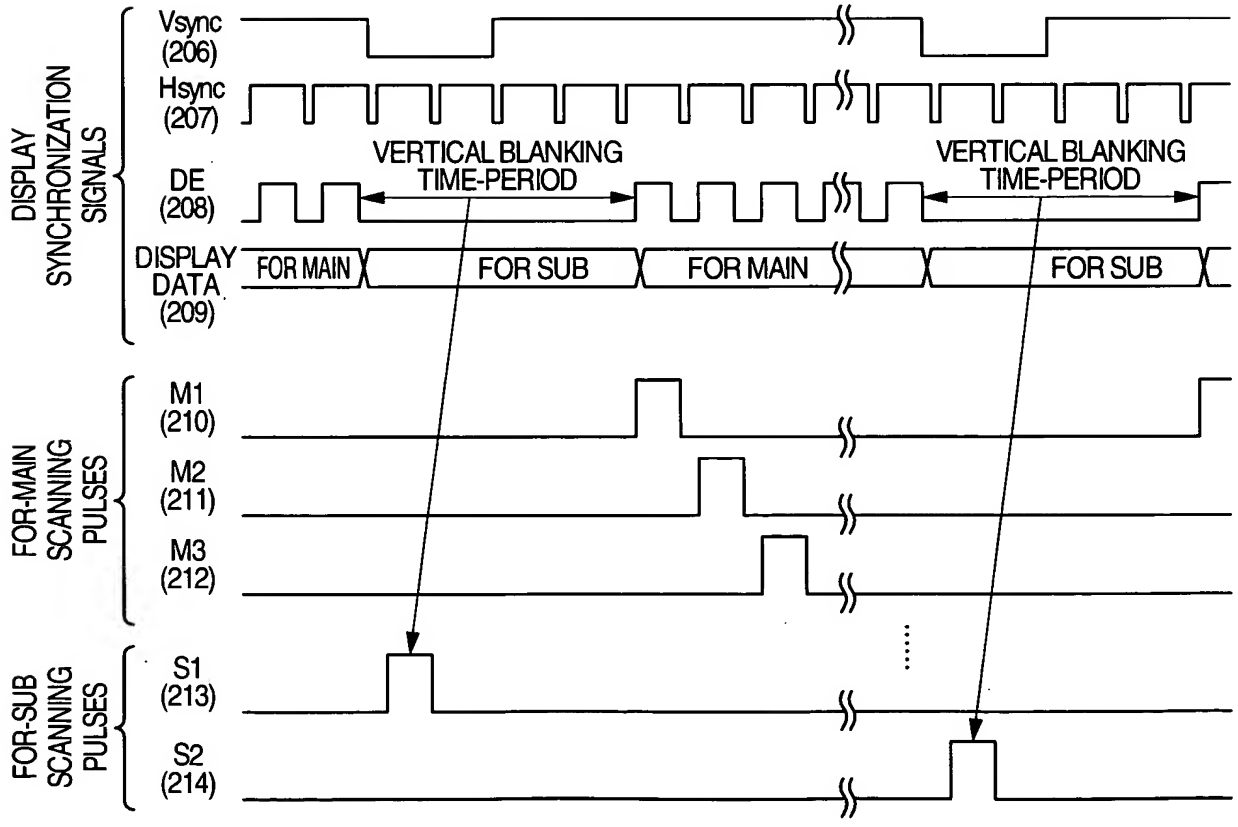

DISPLAY SYNCHRONIZATION SIGNALS
Vsync (206)
Hsync (207)
DE (208)
VERTICAL BLANKING TIME-PERIOD
VERTICAL BLANKING TIME-PERIOD
DISPLAY DATA (209)
FOR MAIN
FOR SUB
FOR MAIN
FOR SUB
FOR-MAIN SCANNING PULSES
M1 (210)
M2 (211)
M3 (212)
FOR-SUB SCANNING PULSES
S1 (213)
S2 (214)

FIG. 3

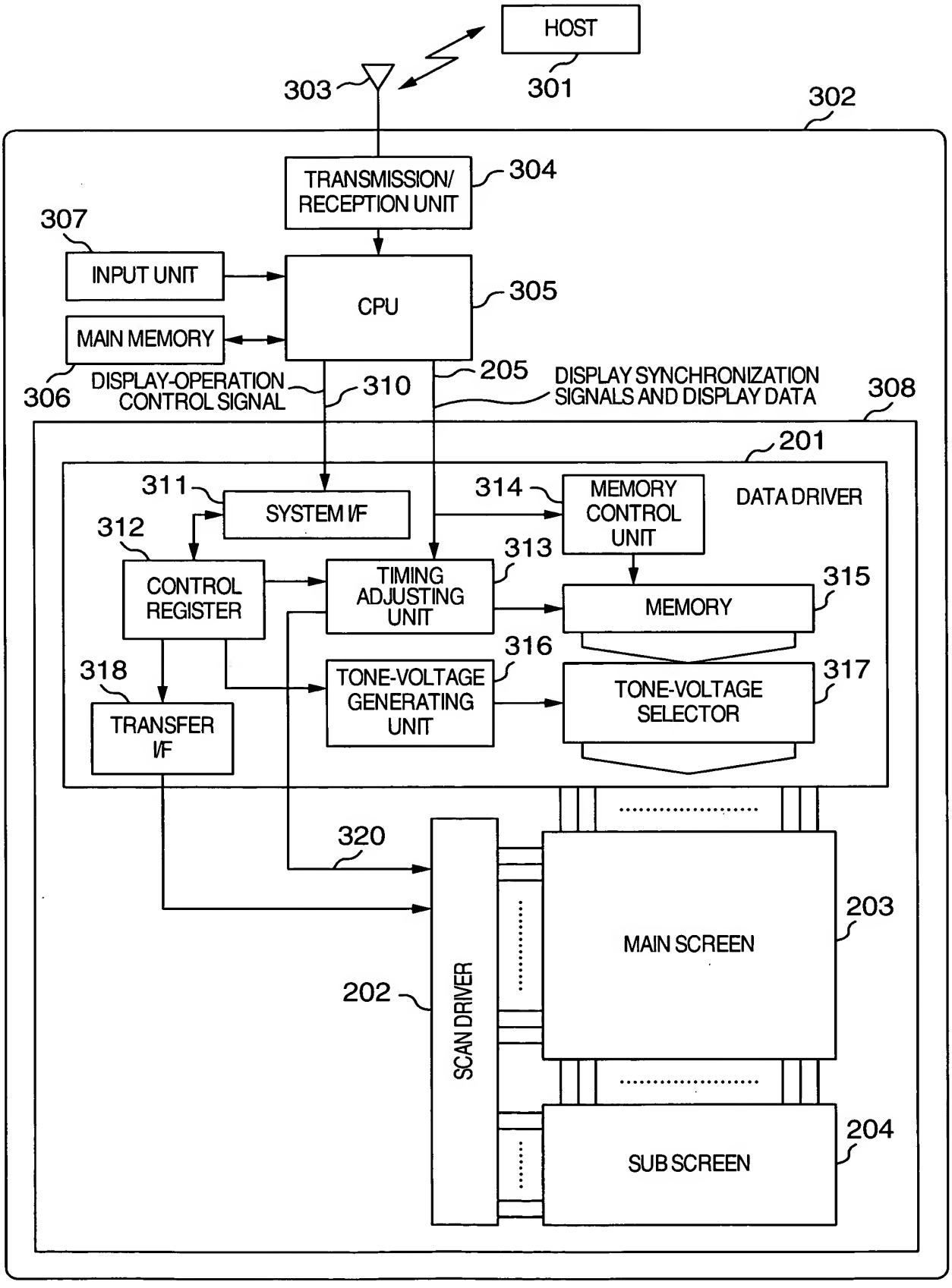

HOST
301
303
302
TRANSMISSION/
RECEPTION UNIT
304
307
INPUT UNIT
CPU
305
MAIN MEMORY
306
DISPLAY-OPERATION
CONTROL SIGNAL
310
205
DISPLAY SYNCHRONIZATION
SIGNALS AND DISPLAY DATA
308
201
DATA DRIVER
311
SYSTEM I/F
314
MEMORY
CONTROL
UNIT
312
313
CONTROL
REGISTER
TIMING
ADJUSTING
UNIT
315
MEMORY
316
318
TONE-VOLTAGE
GENERATING
UNIT
317
TONE-VOLTAGE
SELECTOR
TRANSFER
I/F
320
203
MAIN SCREEN
202
SCAN DRIVER
204
SUB SCREEN

FIG. 4

CONTROL-REGISTER ADDRESS [HEX]	16-BIT DATA															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
10h	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	DS
	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
11h	SL7	SL6	SL5	SL4	SL3	SL2	SL1	SL0	ML7	ML6	ML5	ML4	ML3	ML2	ML1	ML0
	0	1	1	0	0	0	0	0	1	0	1	1	0	0	0	0
12h	*	*	*	*	*	*	*	*	BL7	BL6	BL5	BL4	BL3	BL2	BL1	BL0
	*	*	*	*	*	*	*	*	0	0	0	0	0	1	0	0
13h																

	DS	
SET VALUE	0	1
OPERATION OF DRIVERS	MAIN-SCREEN DISPLAY OPERATION (SUB-SCREEN NON-DISPLAY OPERATION)	SUB-SCREEN DISPLAY OPERATION (MAIN-SCREEN NON-DISPLAY OPERATION)

DS : SIGNAL FOR INDICATING DISPLAYED STATE

ML : SIGNAL FOR INDICATING NUMBER OF MAIN-SCREEN DRIVING-LINES

SL : SIGNAL FOR INDICATING NUMBER OF SUB-SCREEN DRIVING-LINES

BL : SIGNAL FOR INDICATING NUMBER OF VERTICAL BLANKING TIME-PERIOD DRIVING-LINES

* : UNSET DATA

FIG. 5

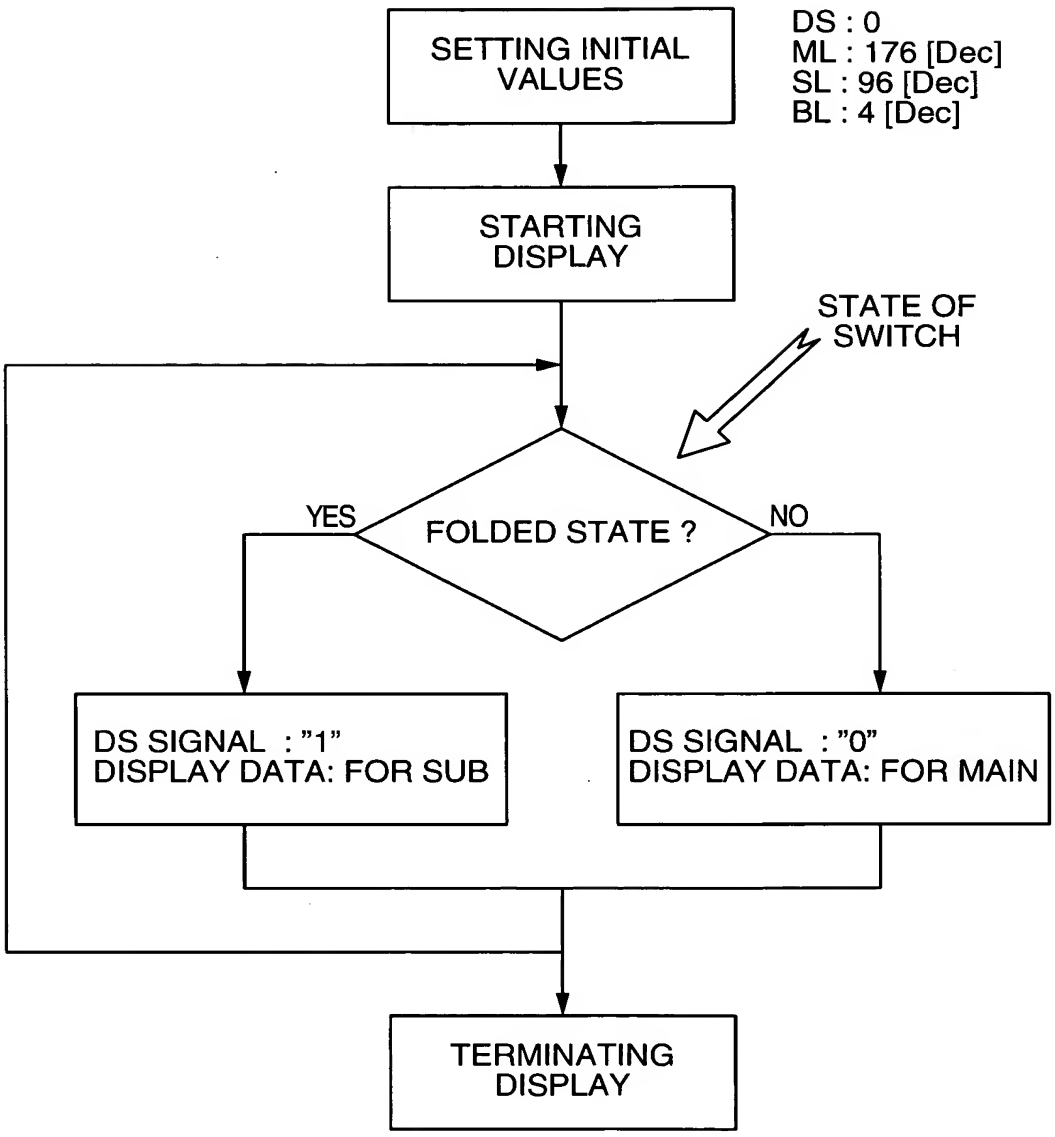

SETTING INITIAL VALUES
DS : 0
ML : 176 [Dec]
SL : 96 [Dec]
BL : 4 [Dec]
STARTING DISPLAY
STATE OF SWITCH
YES
FOLDED STATE ?
NO
DS SIGNAL : "1"
DISPLAY DATA: FOR SUB
DS SIGNAL : "0"
DISPLAY DATA: FOR MAIN
TERMINATING DISPLAY

FIG. 6

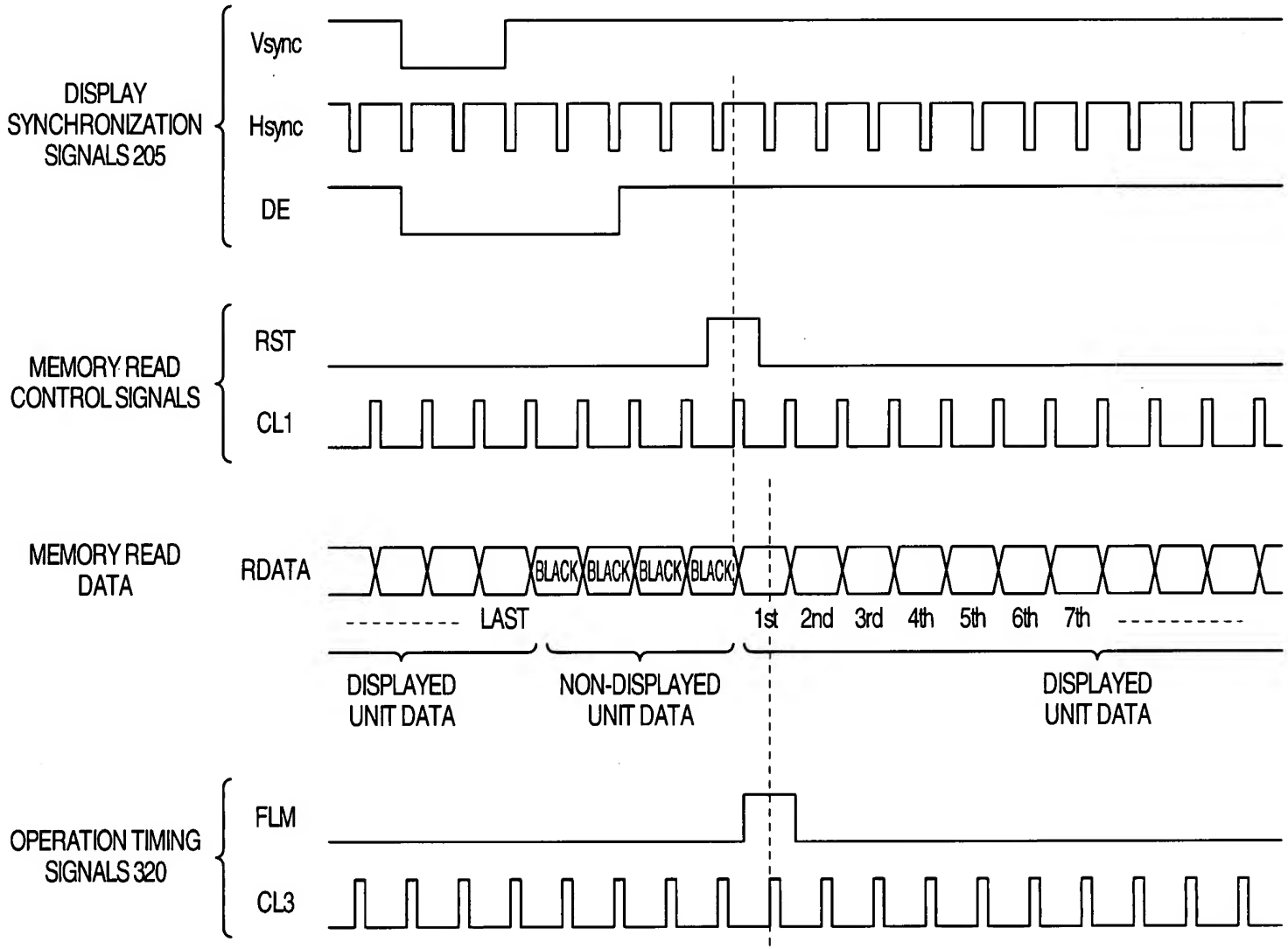

DISPLAY SYNCHRONIZATION SIGNALS 205
Vsync
Hsync
DE
MEMORY READ CONTROL SIGNALS
RST
CL1
MEMORY READ DATA
RDATA
BLACK
BLACK
BLACK
BLACK
LAST
1st
2nd
3rd
4th
5th
6th
7th
DISPLAYED UNIT DATA
NON-DISPLAYED UNIT DATA
DISPLAYED UNIT DATA
OPERATION TIMING SIGNALS 320
FLM
CL3

FIG. 7

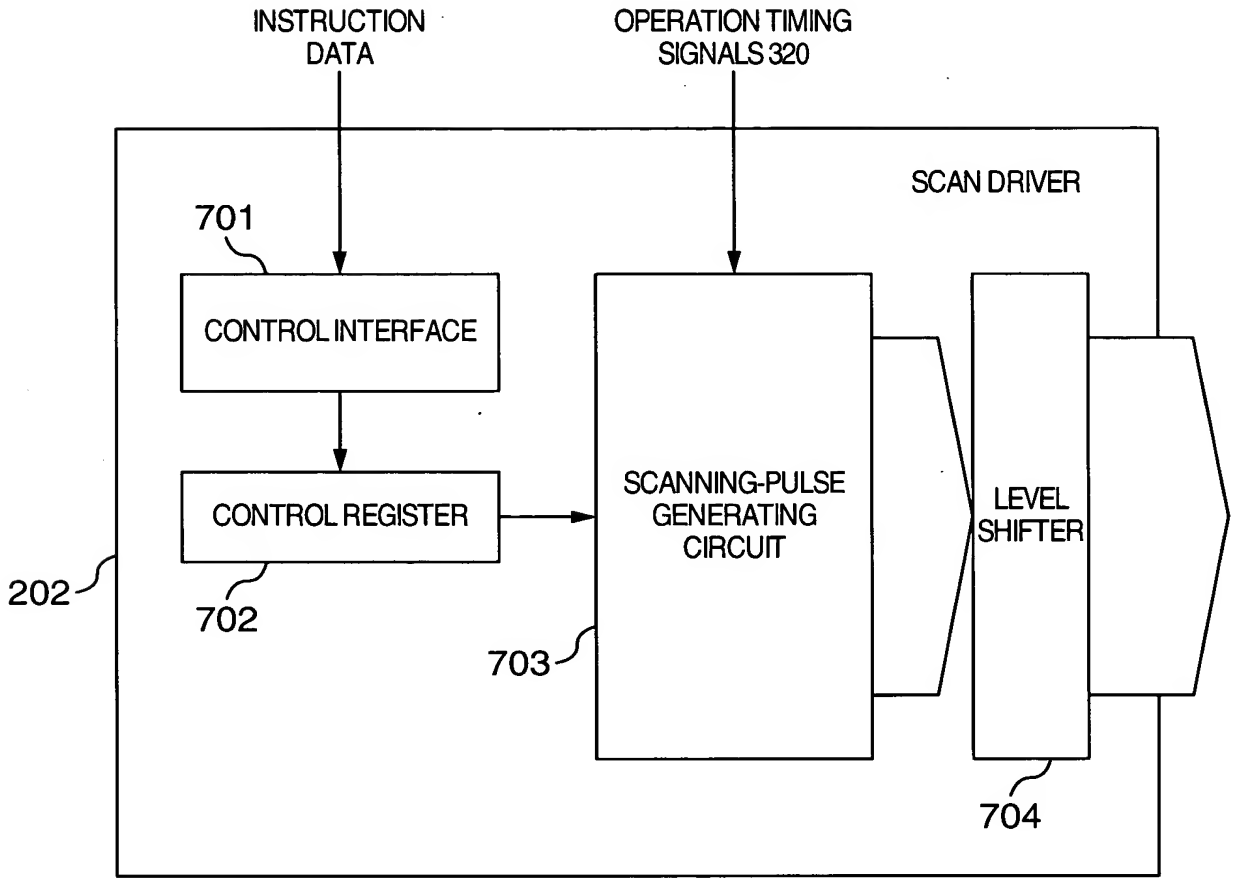

INSTRUCTION DATA
OPERATION TIMING SIGNALS 320
SCAN DRIVER
701
CONTROL INTERFACE
CONTROL REGISTER
SCANNING-PULSE GENERATING CIRCUIT
LEVEL SHIFTER
202
702
703
704

FIG. 8

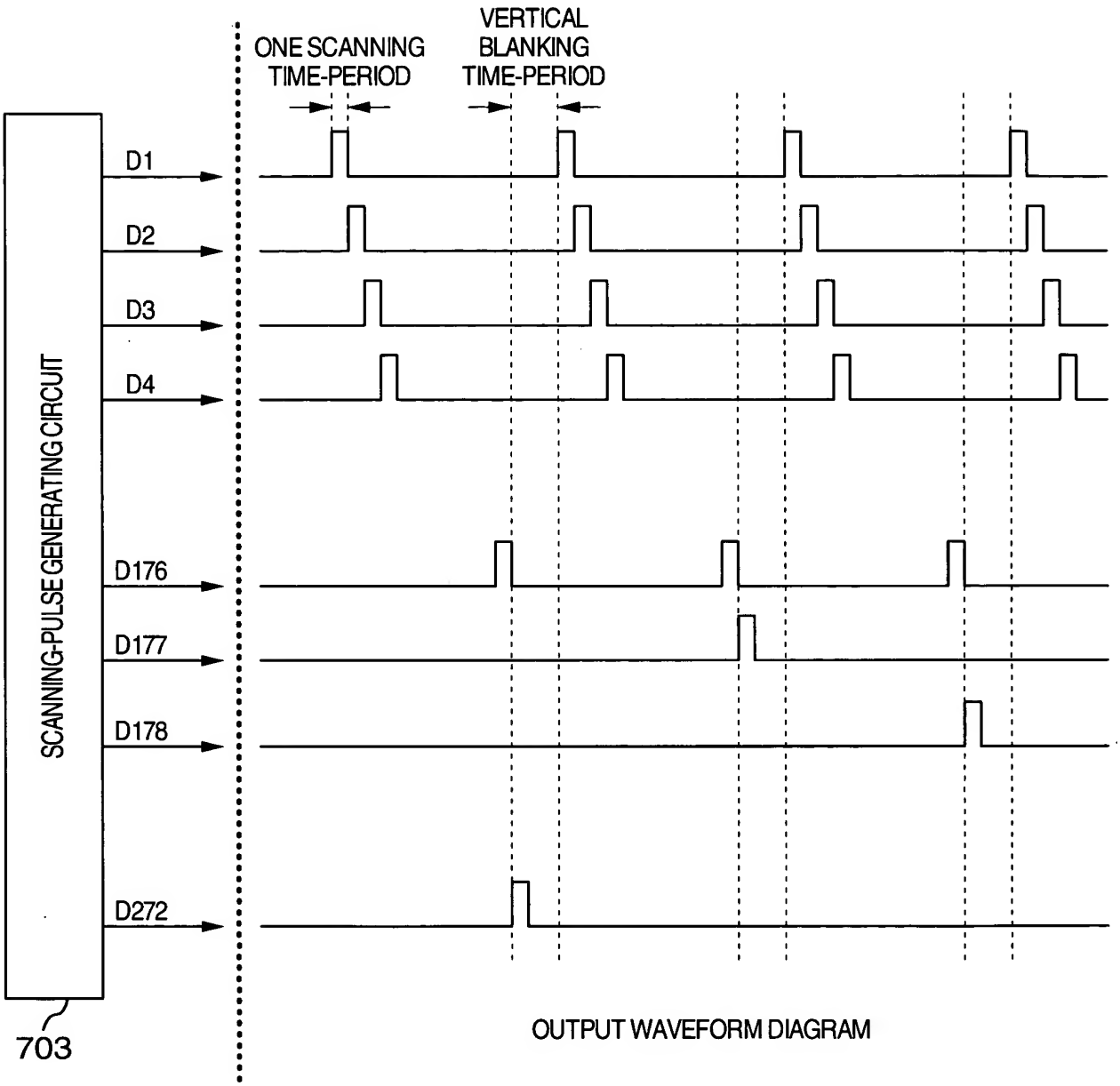

ONE SCANNING TIME-PERIOD
VERTICAL BLANKING TIME-PERIOD
SCANNING-PULSE GENERATING CIRCUIT
D1
D2
D3
D4
D176
D177
D178
D272
703
OUTPUT WAVEFORM DIAGRAM

FIG. 9

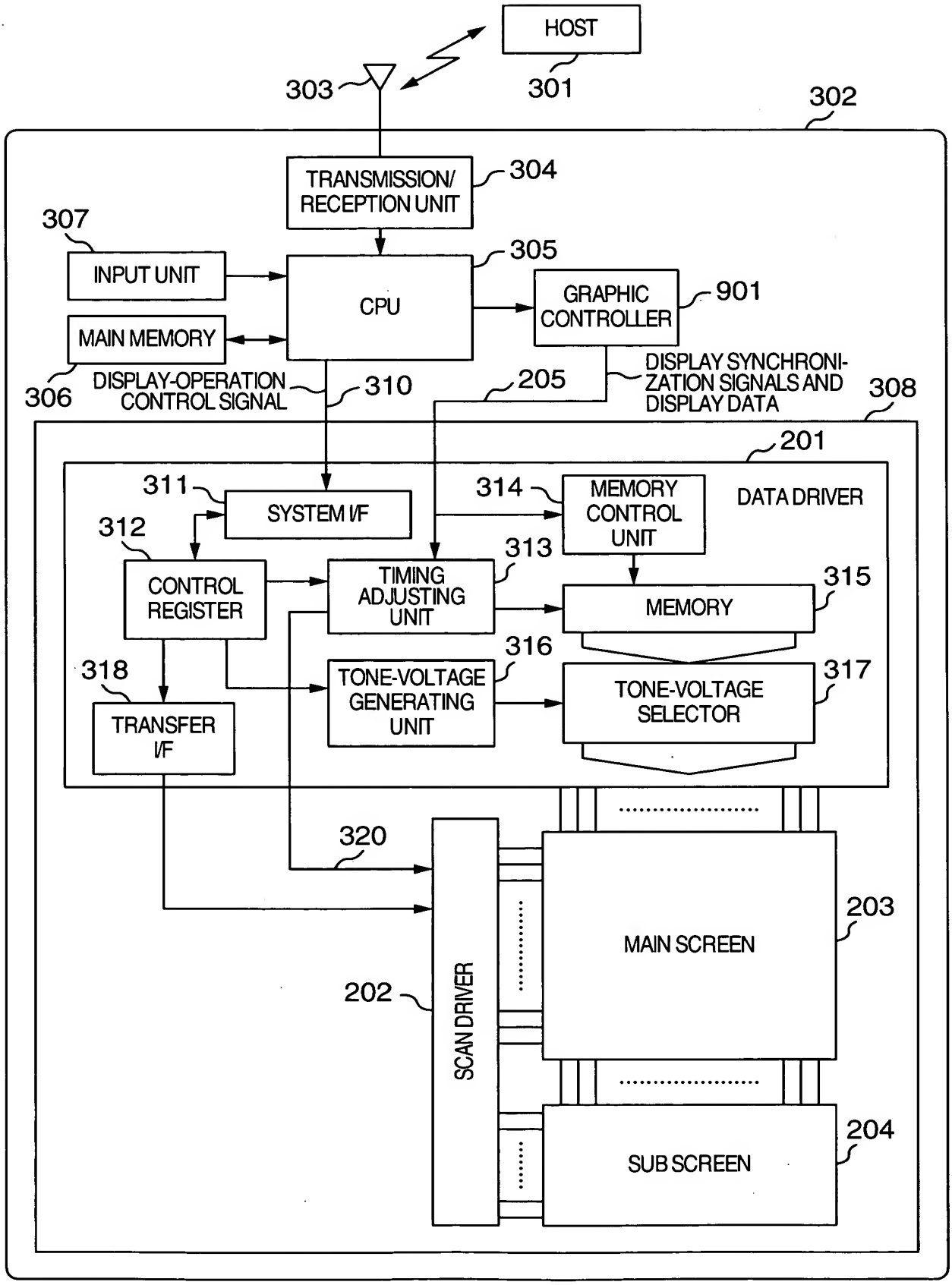

HOST
301
303
302
TRANSMISSION/
RECEPTION UNIT
304
307
INPUT UNIT
305
CPU
GRAPHIC
CONTROLLER
901
MAIN MEMORY
306
DISPLAY-OPERATION
CONTROL SIGNAL
310
205
DISPLAY SYNCHRONI-
ZATION SIGNALS AND
DISPLAY DATA
308
201
DATA DRIVER
311
SYSTEM I/F
314
MEMORY
CONTROL
UNIT
312
CONTROL
REGISTER
313
TIMING
ADJUSTING
UNIT
315
MEMORY
316
318
TONE-VOLTAGE
GENERATING
UNIT
317
TONE-VOLTAGE
SELECTOR
TRANSFER
I/F
320
203
MAIN SCREEN
202
SCAN DRIVER
204
SUB SCREEN

FIG. 10

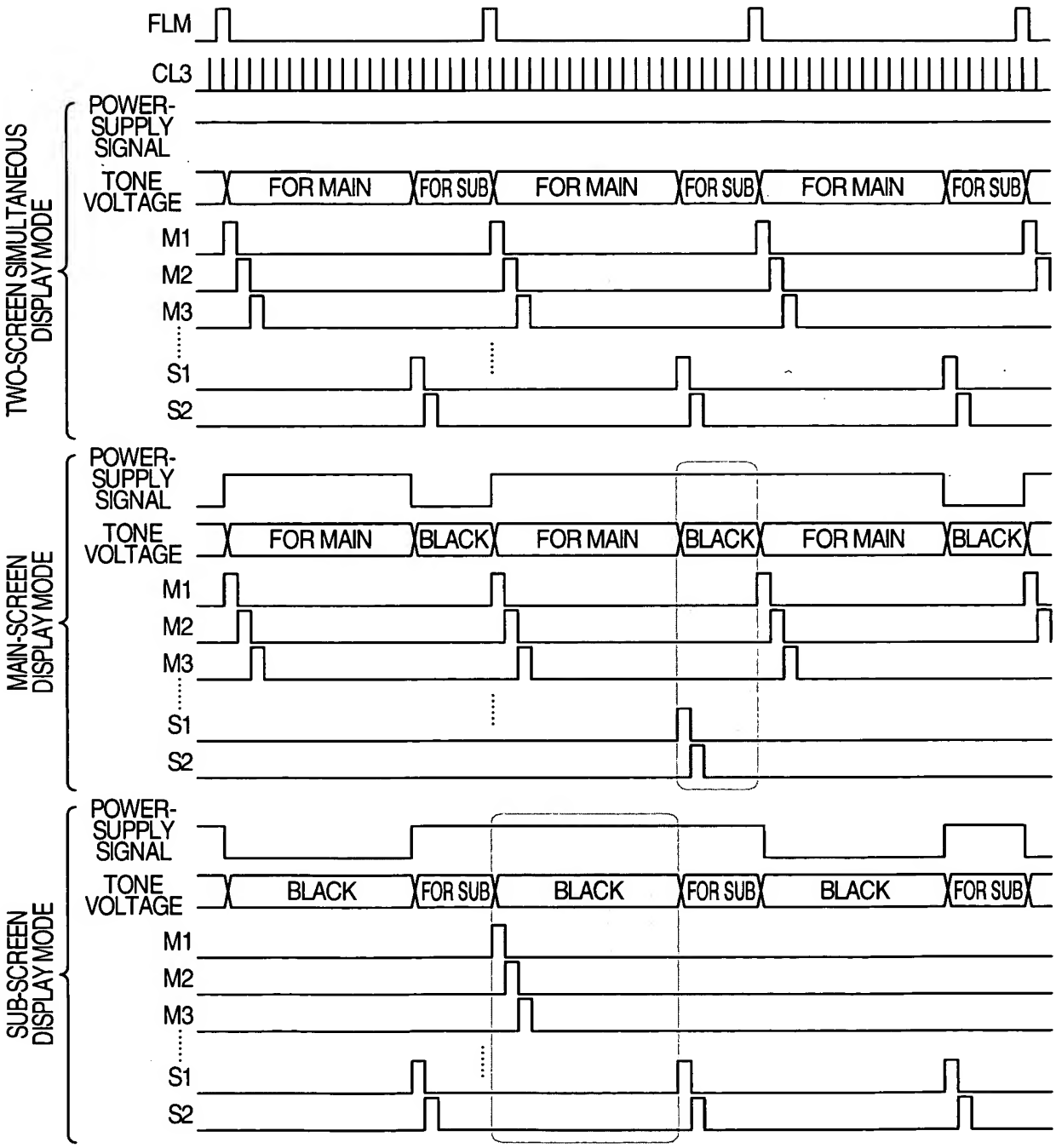

FLM
CL3
TWO-SCREEN SIMULTANEOUS DISPLAY MODE
POWER-SUPPLY SIGNAL
TONE VOLTAGE
FOR MAIN
FOR SUB
FOR MAIN
FOR SUB
FOR MAIN
FOR SUB
M1
M2
M3
S1
S2
MAIN-SCREEN DISPLAY MODE
POWER-SUPPLY SIGNAL
TONE VOLTAGE
FOR MAIN
BLACK
FOR MAIN
BLACK
FOR MAIN
BLACK
M1
M2
M3
S1
S2
SUB-SCREEN DISPLAY MODE
POWER-SUPPLY SIGNAL
TONE VOLTAGE
BLACK
FOR SUB
BLACK
FOR SUB
BLACK
FOR SUB
M1
M2
M3
S1
S2

FIG. 11

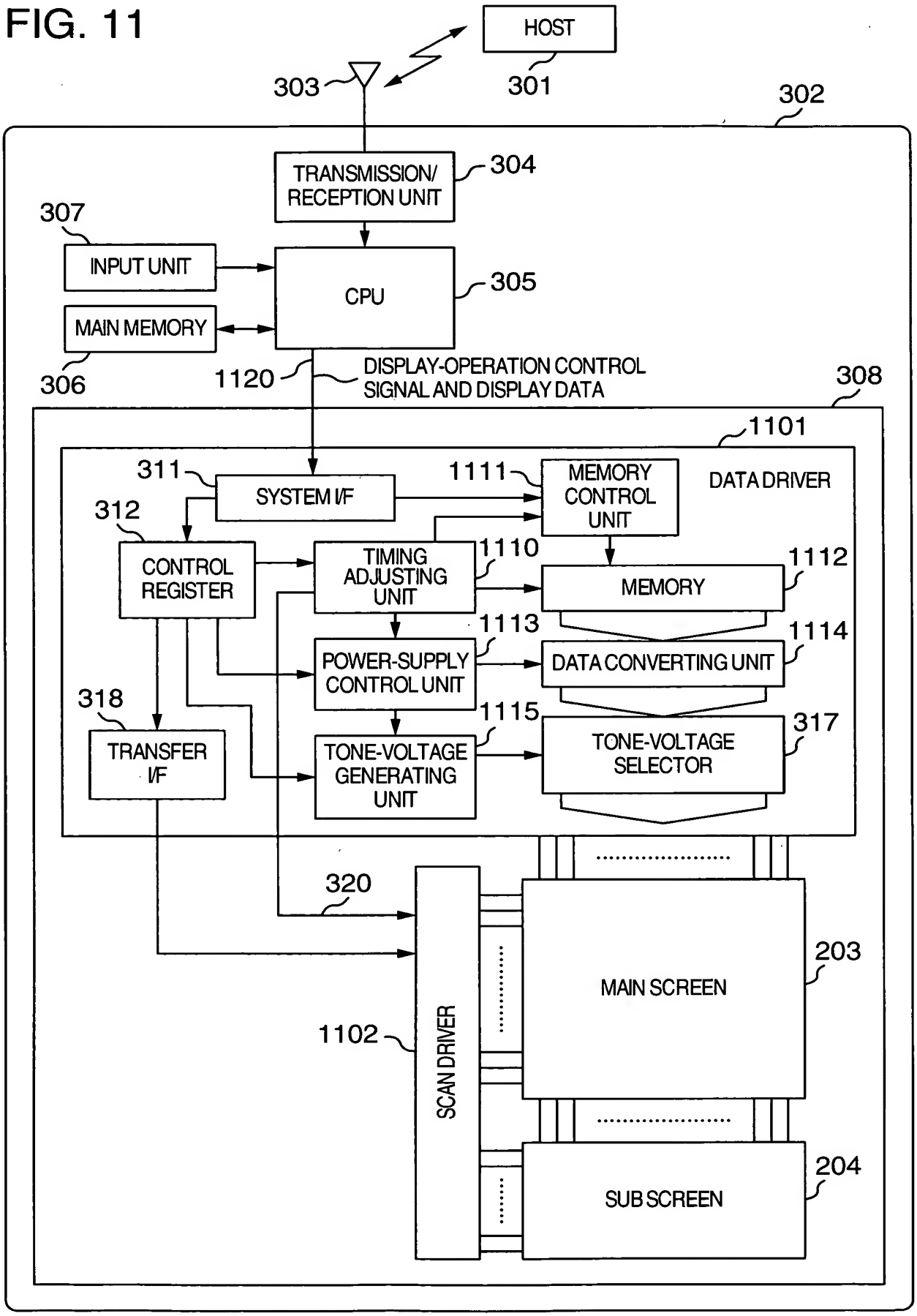
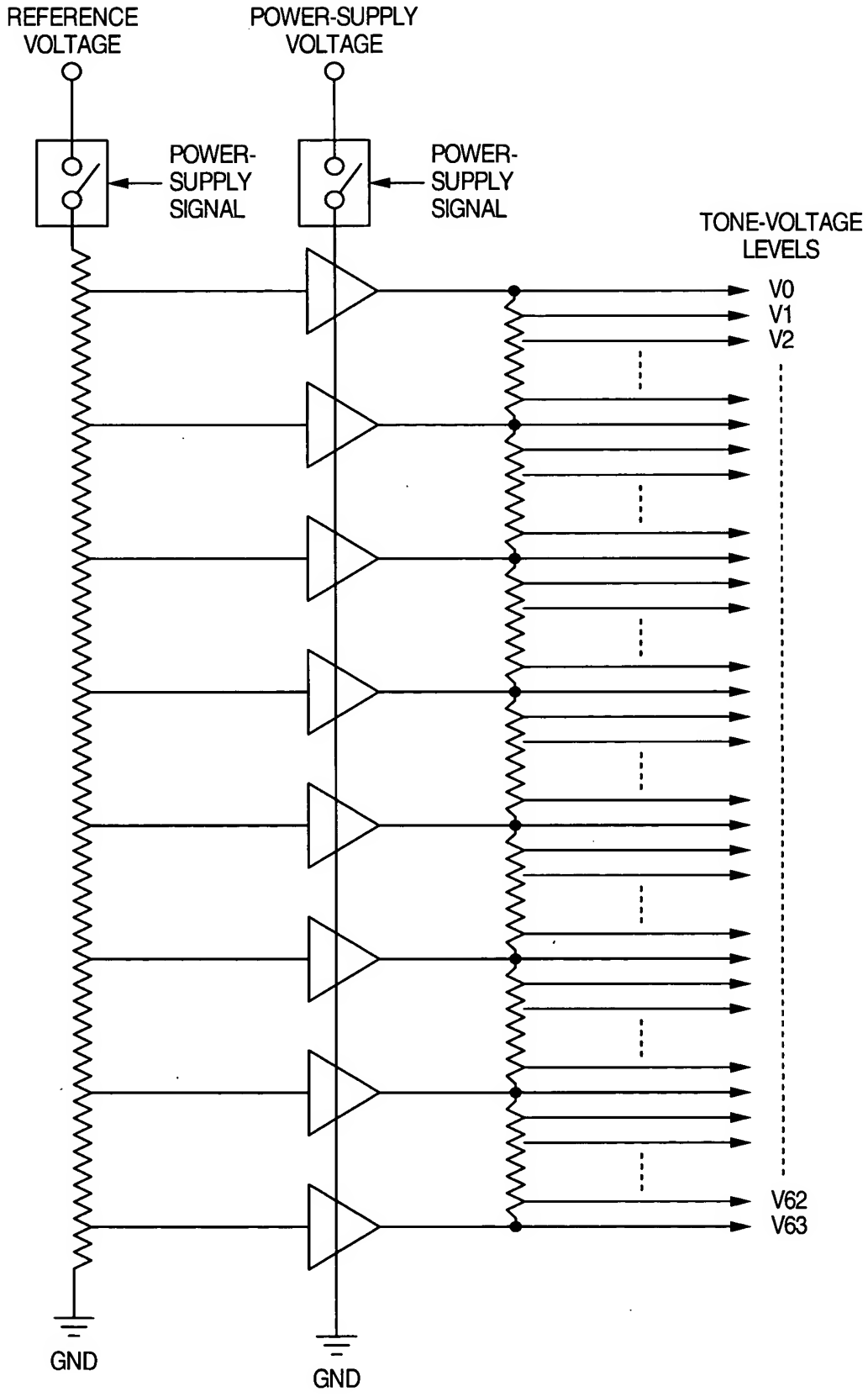

HOST
303
301
302
TRANSMISSION/
RECEPTION UNIT
304
307
INPUT UNIT
CPU
305
MAIN MEMORY
306
1120
DISPLAY-OPERATION CONTROL
SIGNAL AND DISPLAY DATA
308
1101
311
SYSTEM I/F
1111
MEMORY
CONTROL
UNIT
DATA DRIVER
312
CONTROL
REGISTER
TIMING
ADJUSTING
UNIT
1110
1112
MEMORY
1113
1114
POWER-SUPPLY
CONTROL UNIT
DATA CONVERTING UNIT
318
1115
317
TRANSFER
I/F
TONE-VOLTAGE
GENERATING
UNIT
TONE-VOLTAGE
SELECTOR
320
203
MAIN SCREEN
1102
SCAN DRIVER
204
SUB SCREEN

FIG. 12


REFERENCE VOLTAGE
POWER-SUPPLY VOLTAGE
POWER-SUPPLY SIGNAL
POWER-SUPPLY SIGNAL
TONE-VOLTAGE LEVELS
V0
V1
V2
V62
V63
GND
GND